A locomotive engine, using coal dirt exclusively for fuel, has recently been engaged in hauling coal trains over the Philadelphia and Reading Railroad, generating steam freely without the use of any portion of the exhaust steam as a draught-promoting agent, the substitute being a continuous supply of air and vapor, introduced into a closed ash-pan as above described, aided by very small jets of live steam in the chimney for the purpose of facilitating the passage upwards of the products of combustion.

These results obtained from many boilers now using the apparatus described, show that the hitherto neglected and apparently valueless material, known as coal dirt, can be profitably used for generating steam, and that hereafter it must be regarded as a fuel of great value.

Stated Meeting, March 17, 1876.

Present 16 members.

Dr. Bridges in the Chair.

A letter acknowledging the receipt of Trans. V. and Proc. 94, was received from the Boston Society of Natural History.

Donations for the Library were received from the Bureau of Mines at Victoria, the Society of Physical Science at Bordeaux, the Revue Politique, Canadian Naturalist, Boston S. N. H., American Antiquarian Society, Bedford Library, Astor Library, Franklin Institute, Medical News, Prison Discipline Association, Geological Survey of Pennsylvania, Geological Survey of Ohio, and President Allen.

Prof. Houston communicated again his views respecting the so-called new force, and in reference to certain strictures which have appeared in print, since his former communication. He described the results of experiments proving a polar condition of the force, and demonstrating the impossibility of its being anything but electricity under stratical tension.

Mr. Eli K. Price continued the communication of his views on the Glacial Epoch, so-called, arguing against a general polar outspread of ice, and for the explanation of all drift phenomena on the theory of iceberg distribution.

Prof. Chase exhibited diagrams representing certain mathematical and astronomical relationships of length, orbital movement and planetary distance, which he stated and described, including in his subject matter of discussion the possible influence of the meteor-belts.

Pending nominations Nos. 792, 793, and new nominations Nos. 794 to 802 were read.

On motion, the Committee appointed at a previous meeting to consider the expediency of an exhibition of the Progress of Science in the last hundred years, was discharged from further consideration of the subject.

A request by letter from Mr. Etting that the Society permit the exhibition of its original draft of the Declaration of Independence by the city in the Museum of the City Hall, was, on motion, referred to the Curators to report.

And the meeting was adjourned.

ON SOME DISPUTED POINTS IN PHYSIOLOGICAL OPTICS.

By Henry Hartshorne.

(*Read before the American Philosophical Society, April* 21, 1876.)

I. On the Theory of Erect Vision, with Inverted Retinal Images.

As it has been ascertained, by both mathematical and physical demonstration, that the image of every object seen must be inverted upon each retina, several explanations have been offered for the correspondence of our sight with the actual position of visible things. The most prominent views advanced are the following :—1. That we do see everything inverted, but that the correction has been obtained, and has become habitual and momentary, through *experience;* 2, that the reversal of all images is effected by the crossing of the filaments of the *optic nerves;* so that, e. g., all the filaments from the upper part of the retina go to the lower part of the optic ganglia at the base of the brain, and *vice-versa;* 3, that we do not mentally regard the image or picture *upon the retina* at all, but look *from* the retina, *at the object;* or, as one authority upon the subject prefers to express it, "the local change excited in the retina must be conveyed to the optic nerve, communicated to the brain, and again, in an inverted direction, projected outward; through this double inversion the projected image corresponds to